BRP

UNIT: 1

Q1 What is the difference between R and Rstudio?

- R is a programming language and environment used for statistical computing and data analysis.
- RStudio is an Integrated Development Environment (IDE) for R. It provides a user-friendly interface with features like:
- Scripts editor
- Console
- Plot viewer
- Role and variable browser
- Think of R as the engine, and RStudio as the car dashboard that makes it easier to drive.

Q2. How do you assign a value to a variable in R? Give an example?

→ In R, you can assign a value using either ← (preferred) or = .

Example:

x ← 10

name ← Jhon.

Q3. List any three basic data types in R with example.

→ Here are 3 basic data type in R.

Data type	Description	Example
Numeric	Decimal or whole numbe	x ← 25.5
Character	Text or string data	name ← "Alece"
Logical	Boolean values (True/false)	flag ← True

Q4 What is the output of the following code?

```
x <- 5
y <- 10
print(x > y)
```

-> [1] FALSE : 5 is not greater than 10, so the result is FALSE

5. Which function in R is used to accept user input from the keyboard?

-> The function used is: readline()

Example:

```
name <- readline(prompt = "Enter your name:")
```

UNIT: 2

Q1. What is a vector in R?

-> A vector in R is a sequence of element of the same data type (numeric, character, logical, etc.). It is the most basic data structure in R.

Example: num_vec <- c(1, 2, 3, 4)

Q2. How do you create a vector of strings in R?

-> You use the c() function to combine elements into a vector.

Example: names <- c("Alice", "Bob", "Charlie")

Q3. What operator is used to generate a sequence of numbers in a vector?

-> The colon operator (:) is used to generate a sequence.

Example: seq_vec <- 1:5 # output : 1, 2, 3, 4, 5

You can also used the seq() function for more control:

seq(1, 10, by=2) # Output :1, 3, 5, 7, 9.

Q4. How can you find the length of a vector in R?
→ Use the length() function.
Example: length(c(10, 20, 30)) # output: 3

Q5. How do you access the third element of a vector?
→ Use square bracket with the index:
Example: v ← c(5, 10, 15, 20)
v[3] # output: 15

Q6. Explain how to change a specific value in a vector.
→ Use the index and assignment operator:
Example: v ← c(1, 2, 3)
v[2] ← 10
print(v) # output: 1 10 3

Q7. What is the purpose of the rep() function in R?
→ The rep() function is used to repeat values or vectors.
Examples: rep(5, times=3) # output: 5 5 5
rep(c(1, 2), times=2) # Output: 1 2 1 2
rep(c("a", "b"), each=2) # output: "a" "a" "b" "b"

MCQ.

1. Which function is used to create a vector in R?
c) c()

2. What will 1:5 return in R?
b) [1] 1 2 3 4 5

3. How do you create a vector with TRUE and FALSE values?
b) log_vector ← c(TRUE, FALSE)

4. Which function returns the number of elements in a vector?
d) length()

5. What does sort (c(4, 2, 9)) return?
c) [1] 2 4 9

6. What is the index number of the first item in an R vector?
b) 1

7. What does fruits[c(1, 3)] return if fruits ← c("banana", "apple", "orange")?
c) banana orange.

8. Which function can be used to repeat elements in a vector?
b) rep()

9. What will fruits[-1] return if fruits <- c("banana", "apple", "orange")?
c) All items except "banana"

10. Which of the following is used to generate a numeric sequence with a defined interval?
c) seq()